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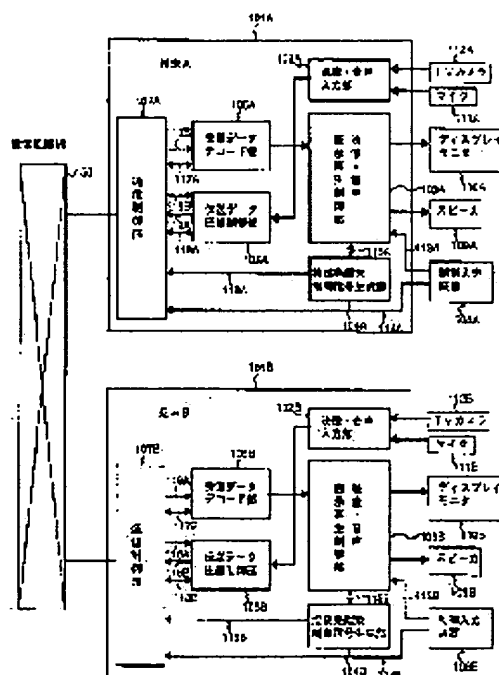
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(54) VIDEO TRANSMISSION PROCESSING DEVICE

(57)Abstract:

PURPOSE: To freely revise and set the resolution and the frame rate of compressed data sent from a connected terminal equipment by providing a connection destination control signal generating section to the terminal equipment so as to allow the receiver side to control the compressed data.

CONSTITUTION: The size of a display pattern of a video image or the lightness or the like or a sound level inputted to a speaker 109B and a frequency characteristic or the like is controlled through a command via a control input device 108. In this case, a video/sound indication reproduction control section 103B outputs a display state of a video image and a reproduction state of a sound signal to a connection destination control signal generating section 104B. The connection destination control signal



generating section 104B outputs a control signal to a transmission data compression control section 105A of a terminal equipment 101A of a connection destination in response to the state of a status signal. Thus, a compression parameter of transmission data or the like is controlled at the receiver side in a form corresponding to the display content on the display monitor 110B at the terminal equipment 101B or the sound reproduction state of a speaker 109B.

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CLAIMS

[Claim(s)]

[Claim 1] An image and a voice input part which has the function to make dynamic image information and speech information input, and to change this information into digital data. A function to input directions for controlling as a data compression control section which carries out data compression processing of said digital data.

Are the image transmission processing unit provided with the above, and an image transmission processing unit of an identical configuration is connected also to a connection destination connected via a communication line, and said image and phonological representation reproduction control part, Have a function which outputs a status signal about a display and a reproduction state containing a size of a screen, and with this status signal. A signal which was provided with a connection destination terminal control signal generation part which generates a signal which controls a sound and picture information which an image transmission processing unit of a connection destination outputs, and was generated by this connection destination terminal control signal generation part via said communication control part, You output to a communication line, and make it input into a data compression control section of an image transmission processing unit of a connection destination, and a data compression processing parameter in an image transmission processing unit of a connection destination is controlled by an image transmission processing unit of a connecting agency.

[Claim 2] In claim 1 statement, said connection destination terminal control signal generation part, When a size of a frame rate which is the dynamic image information which detects a size of a display screen based on a status signal, and an image transmission processing unit of a connection destination sends out, and resolution is determined, An image transmission processing unit generating a control signal so that data volume of one frame and a value which multiplied by a frame rate may become within a predetermined value defined beforehand.

[Claim 3]An image transmission processing unit, wherein said connection destination terminal control signal generation part generates a control signal in claim 1 statement so that the maximum transmission rate of a communication line may not be exceeded for a transmission rate of dynamic image information and speech information which an image transmission processing unit of a connection destination sends out.

[Claim 4]claims 1, 2, and 3 -- further a superposition control section and a control signal generating part in either, [provide and] A display control part which connects and constitutes a system bath of this control signal generating part and an information processor and with which this information processor is provided, Have the function to make a display status signal about a state of a display screen input into said control signal generating part, and a control signal generating part, Directions given via an input device with which an information processor is provided, and said display status signal are used, Further, carry out the generation output of said connection destination terminal control signal, output a control signal to said image and sound reproduction control section, and a superposition control section, An image transmission processing unit compounding display information outputted from an image and a phonological representation reproduction control part, and display information outputted from said display control part, sending out to a displaying means with which said information processor is provided, and outputting a composited picture on a screen of this displaying means.

[Claim 5]An image and a voice input part which has the function to be an image transmission processing unit which connects between at least two or more image processing devices and these image processing devices using a communication line, and for each image processing device to make dynamic image information and speech information input, and to change this information into digital data

A function to input directions for controlling as a data compression control section which carries out data compression processing of said digital data.

Are the image transmission processing unit provided with the above, and an image transmission processing unit of an identical configuration is connected also to a connection destination connected via a communication line, and said image and phonological representation reproduction control part, Output a status signal which shows a display and a reproduction state, and with this status signal. A signal which was provided with a connection destination terminal control signal generation part which generates a signal which controls information about a sound and a picture which an image transmission processing unit of a connection destination outputs, and was generated by this connection destination terminal control signal generation part via said communication control part, You output to a communication line, and make it input into a data compression control section of an image transmission processing unit of a connection destination, and a data compression parameter in

an image transmission processing unit of a connection destination is controlled by an image transmission processing unit of a connecting agency.

[Claim 6]claims 1, 2, 3, and 5 -- an image transmission processing unit by which it is having-function in which said picture output means displays instruction items for performing control defined beforehand on display screen in either, and directions can be inputted via this display screen characterized.

[Claim 7]An image transmission processing unit by which it is having-function in which displaying means with which said information processor is provided displays instruction items for performing control defined beforehand on display screen in claim 4 statement, and directions can be inputted via this display screen characterized.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention communicates bidirectionally by using an animation and a sound as compressed data, and relates to the image transmission processing unit which performs display and reproduction.

[0002]

[Description of the Prior Art] conventionally, as art which communicates moving image information and speech information simultaneously, there is a TV phone indicated from video information (I) (September, 1988) 49 page to "54 pages", for example. The composition of this TV phone is explained using drawing 3.

[0003] The component of a TV phone serves as the video section 403 which processes dynamic image information, the voice part 416 which processes speech information, and basic constitution with the operation key 420 which controls dispatch of a telephone, a video voice, etc. The display 409 grade for displaying the camera 401 which photos a call person's face etc., and the image sent from the other party is connected to the video section 403 via the video signal line 402 and the status signal line 426, respectively. The receiver 410 which is a means to perform the ON and the output of speech information is connected to the voice part 416 via the audio signal line 413. The loudspeaker 411 and the microphone 412 are connected to the voice part 416 via the audio signal line 414 and the audio signal line 415, respectively for talking over the telephone, with a receiver placed etc.

[0004] Since a TV phone communicates via the communication line 408 in which a maximum exists to the transmission rate of data, if it does not lessen data volume to transmit, it cannot transmit moving image information and speech information simultaneously. Therefore, image coding and the decoding section 405 are connected to the video section 403 via the decryption video signal line 404, and, on the other hand, voice coding and the decoding section 418 are

connected to the voice part 416 via the decoded speech signal wire 417 at it. Video signal data is coded, and you output an encoded video signal on an encoded video signal, and make it input into the communication line interface 407 in image coding and the decoding section 405. An audio signal is coded, and you output a coded voice signal on the coded voice signal line 419, and make it input into the communication line interface 407 in voice coding and the decoding section 418. The operation key 420 is a means to specify each operation of dispatch of a telephone, the display of an image, audio ON, an output, etc., etc.

Make a signal input into the control section 422 via the key output signal line 421, and the control section 422, In order to control an image, a sound, a circuit, etc., a video control signal is made to input into image coding and the decoding section 405 via the video control signal line 425, A voice control signal is made to input into voice coding and the decoding section 418 via the voice control signal wire 424, and a line control signal is made to input into the communication line interface 407 via the line control signal 423.

In the communication line interface 407, multiplexing processing of a coding BITEO signal, a coded voice signal, and the line control signal 423 is carried out, and it outputs to the communication line 408. On the other hand, the signal which was inputted from the communication line 408 at the time of reception and by which multiplexing processing was carried out, With the communication line interface 407, separate into an encoded video signal and a coded voice signal, and in image coding and the decoding section 405. An encoded video signal is decrypted and it outputs on the decryption BITEO signal wire 404, and a status signal is outputted to the display 409 and an animation is made to display on the display 409 by the video section 403.

[0005]On the other hand, at voice coding and the decoding section 418, a coded voice signal is decrypted, it outputs on the decoded speech signal wire 417, and the inputted decoded speech signal is outputted to the receiver 410 and the loudspeaker 411 via the audio signal line 413 and the audio signal line 414 in the voice part 416, respectively.

[0006]

[Problem(s) to be Solved by the Invention]Conventionally, in the device which transmits the animation and speech information like a TV phone, compression parameters at the time of moving-image-information compression have determined the value at the transmitting side by restrictions of the maximum transmission rate of the channel to be used.

[0007]Usually, this parameter is automatically set according to the motion of an image inputted from a camera etc. According to said parameter, data compression processing is performed and the image incorporated from the camera etc. at the transmitting side is sent to a receiver. In a receiver, it displays by performing elongation processing of data according to said parameter. The adjustment of the display screen in a receiver can adjust a luminosity, contrast, tone, vividness, etc., when displaying on a display the status signal (video signal) by which

elongation processing was carried out.

[0008]However, according to the contents of the moving image information transmitted, although resolution may be required to the case where the smoothness (frame rate) of a motion is important, and a detailed portion, as an animation in a receiver, in conventional technology, they were not able to be controlled by a receiver and were not able to be changed. About the video displayed by a receiver, this invention is real time and provides the image transmission processing unit which can change the resolution of the data displayed, a frame rate, etc. freely.

[0009]

[Means for Solving the Problem]Since an aforementioned problem is solved, the following means can be considered.

[0010]An image and a voice input part which has the function to make dynamic image information and speech information input, and to change this information into digital data, A data compression control section which carries out data compression processing of said digital data, and a control-input device which has the function to input directions for controlling, A communication control part which performs connection with a communication line, transmission of compressed data, and reception with the directions from this control-input device, A data decode part which carries out elongation processing of the received compressed data, and a picture output means and a voice output means which output these received data by which elongation processing was carried out, Make said elongated received data output to said picture output means and said voice output means, and further with the directions given via said control-input device. In an image transmission processing unit constituted by having an image and the phonological representation reproduction control part which controls a size of a display screen in said picture output means, An image transmission processing unit of an identical configuration is connected also to a connection destination connected via a communication line, and said image and phonological representation reproduction control part have a function which outputs a status signal about a display and a reproduction state containing a size of a screen, and with this status signal. A signal which was provided with a connection destination terminal control signal generation part which generates a signal which controls a sound and picture information which an image transmission processing unit of a connection destination outputs, and was generated by this connection destination terminal control signal generation part via said communication control part, It is an image transmission processing unit which outputs to a communication line, is made to input into a data compression control section of an image transmission processing unit of a connection destination, and controls a data compression processing parameter in an image transmission processing unit of a connection destination by an image transmission processing unit of a connecting agency.

[0011]In this case, said connection destination terminal control signal generation part, When a size of a frame rate which is the dynamic image information which detects a size of a display screen based on a status signal, and an image transmission processing unit of a connection destination sends out, and resolution is determined, Composition which generates a control signal so that data volume of one frame and a value which multiplied by a frame rate may become within a predetermined value defined beforehand is preferred. Composition of said connection destination terminal control signal generation part which generates a control signal is also preferred so that the maximum transmission rate of a communication line may not be exceeded for a transmission rate of dynamic image information and speech information which an image transmission processing unit of a connection destination sends out.

[0012]In the above-mentioned image transmission processing unit, a superposition control section and a control signal generating part are provided further, A display control part which connects and constitutes a system bath of this control signal generating part and an information processor and with which this information processor is provided, Have the function to make a display status signal about a state of a display screen input into said control signal generating part, and a control signal generating part, Directions given via an input device with which an information processor is provided, and said display status signal are used, Further, carry out the generation output of said connection destination terminal control signal, output a control signal to said image and sound reproduction control section, and a superposition control section, Display information outputted from an image and a phonological representation reproduction control part and display information outputted from said display control part are compounded, it sends out to a displaying means with which said information processor is provided, and an image transmission processing unit which outputs a composited picture on a screen of this displaying means is also considered. The following means are also considered as composition which connected two or more image transmission processing units by a communication line.

[0013]Are between at least two or more image processing devices and these image processing devices an image transmission processing unit connected using a communication line, and each image processing device, An image and a voice input part which has the function to make dynamic image information and speech information input, and to change this information into digital data, A data compression control section which carries out data compression processing of said digital data, and a control-input device which has the function to input directions for controlling, A communication control part which performs connection with a communication line, transmission of compressed data, and reception with the directions from this control-input device, A data decode part which elongates received compressed data, and a picture output means and a voice output means which output these received data by which elongation processing was carried out, Make said elongated received data output to said

picture output means and said voice output means, and further with the directions given via said control-input device. In an image transmission processing unit constituted by having an image and the phonological representation reproduction control part which controls a size of a display screen in said picture output means, An image transmission processing unit of an identical configuration is connected also to a connection destination connected via a communication line, and said image and phonological representation reproduction control part output a status signal which shows a display and a reproduction state, and with this status signal. A signal which was provided with a connection destination terminal control signal generation part which generates a signal which controls information about a sound and a picture which an image transmission processing unit of a connection destination outputs, and was generated by this connection destination terminal control signal generation part via said communication control part, It is an image transmission processing unit which outputs to a communication line, is made to input into a data compression control section of an image transmission processing unit of a connection destination, and controls a data compression parameter in an image transmission processing unit of a connection destination by an image transmission processing unit of a connecting agency.

[0014] Said picture output means displays instruction items for performing control defined beforehand on a display screen, An image transmission processing unit considered as composition which has a function in which directions can be inputted via this display screen, Or a displaying means with which said information processor is provided displays instruction items for performing control defined beforehand on a display screen, and can consider an image transmission processing unit considered as composition which has a function in which directions can be inputted via this display screen.

[0015]

[Function] Hereafter, an operation is explained.

[0016] A connection destination terminal control signal generation part is provided in the image transmission processing unit of a receiver, the signal which controls a connection destination, i.e., the image transmission processing unit of the transmitting side, is generated to it, and it inputs into it at the data compression control section of the transmitting side. The data treated here is moving image information, speech information, etc. Now, adjustment of a frame rate, resolution, etc. is enabled by controlling the compression parameter used for processing in the data compression control section built in the device of the transmitting side by the device of a receiver. According to the displaying conditions (the size of a screen, a position, etc.) of the video on which a status signal is displayed by a receiver by inputting into a connection destination terminal control signal generation part from an image and a phonological representation reproduction control part, the compression parameter of the send data of the transmitting side is controllable.

[0017]Therefore, according to one's purpose, it becomes possible to set up a desired compression parameter so that the operator of a receiver may trade off a frame rate, resolution, etc.

[0018]

[Example]It explains with reference to the example of this invention.

[0019]The example of composition of the image transmission processing unit of this invention is shown in drawing 1. In drawing 1, although an image transmission processing unit is connected via the communication line network 150, In this example, it is shown that it is in the state where the image transmission processing unit (it is also only hereafter called "the terminal A") 101A and the image transmission processing unit (it is also only hereafter called "the terminal B") 101B were connected, as two sets of image transmission processing units. The terminal A101A and the terminal B101B have the same composition. Respectively, the numerals of the same number show the same component and it is made into the numerals which gave "A" and "B" to the number.

[0020]Hereafter, explanation of this example explains the composition of the terminal A101A first. The terminal A101A An image and the voice input part 102A, and an image and a phonological representation reproduction control part 103A, The connection destination terminal control signal generation part 104A and the transmission data compression control section 105A, It has the received-data decode part 106A and the communication control part 107A, is constituted, and has further composition provided with TV camera 112A, the microphone 111A, the display monitor 110A, the loudspeaker 109A, and the control-input device 108A outside. An image and the voice input part 102A, an image and a phonological representation reproduction control part 103A, the connection destination terminal control signal generation part 104A, The transmission data compression control section 105A, the received-data decode part 106A, and the communication control part 107A are realizable with electron devices, such as CPU, ROM, RAM, and various C-MOS, for example.

[0021]TV camera 112A and the microphone 111A are connected to an image and the voice input part 102A, and the control signal outputted via the controlling signal lines 113A and 114A is inputted into an image and the phonological representation reproduction control part 103A, and the communication control part 107A from the control-input device 108A, respectively. The compressed data which the output signal of an image and the voice input part 102A is inputted into the transmission data compression control section 105A, and is outputted via the compressed data line 119A from the transmission data compression control section 105A, It is inputted into the communication control part 107A, and the transmission data compression control section 105A and the communication control part 107A are connected with the control signal on the controlling signal line 118A, and a control signal is further inputted into the

transmission data compression control section 105A via the controlling signal line 116B from the communication control part 107A. The received-data decode part 106A and the communication control part 107A are connected with the controlling signal line 117A, and the compressed data outputted via the compressed data line 119B is inputted into the received-data decode part 106A from the communication control part 107A. The output signal of the received-data decode part 106A is inputted into an image and the phonological representation reproduction control part 103A.

[0022]The connection destination terminal control signal generation part 104A, and an image and a phonological representation reproduction control part 103A, It is connected via the status signal line 115A, and the connection destination terminal control signal outputted via the connection destination terminal control signal line 116A is inputted into the communication control part 107A from the connection destination terminal control signal generation part 104A. Next, the composition of the terminal B101B is explained.

[0023]The terminal B101B An image and the voice input part 102B, and an image and a phonological representation reproduction control part 103B, The connection destination terminal control signal generation part 104B and the transmission data compression control section 105B, It has the received-data decode part 106B and the communication control part 107B, was constituted, and has TV camera 112B, the microphone 111B, the display monitor 110B, the loudspeaker 109B, and the control-input device 108B outside further. Said image and voice input part 102B, an image and a phonological representation reproduction control part 103B, The connection destination terminal control signal generation part 104B, the transmission data compression control section 105B, the received-data decode part 106B, the communication control part 107B, etc. are realizable with electron devices, such as CPU, ROM, RAM, and various C-MOS, for example. TV camera 112B and the microphone 111B are connected to an image and the voice input part 102B, and the control signal outputted via the controlling signal lines 113B and 114B is inputted into an image and the phonological representation reproduction control part 103B, and the communication control part 107B from the control-input device 108B, respectively.

[0024]The compressed data which the output signal of an image and the voice input part 102B is inputted into the transmission data compression control section 105B, and is outputted from the transmission data compression control section 105B, Via the compressed data line 119B, it is inputted into the communication control part 107B, and the transmission data compression control section 105B and the communication control part 107B, It is connected with the controlling signal line 118B, and a control signal is further inputted into the transmission data compression control section 105B via the controlling signal line 116A from the communication control part 107B. The received-data decode part 106B and the communication control part 107B are connected with the controlling signal line 117B, and the compressed data outputted

from the communication control part 107B is inputted into the received-data decode part 106B via the compressed data line 119A.

[0025]The output signal of the received-data decode part 106B is inputted into an image and the phonological representation reproduction control part 103B. The connection destination terminal control signal generation part 104B, and an image and a phonological representation reproduction control part 103B are connected by the status signal line 115B, and the connection destination terminal control signal outputted from the connection destination terminal control signal generation part 104B is inputted into the communication control part 107B via the control signal (connection destination terminal) 116B. Next, in the composition of this operation shown by drawing 1, the case where video information and speech information are transmitted to the terminal B (101B) from the terminal A (101A) is taken for an example, and the operation is explained.

[0026]In order to connect the terminal B (101B) with terminal A(101) A with the control-input device 108A. If connection with the terminal B (101B) is directed, the communication control part 107A will be controlled by a control signal (signal on the controlling signal line 114A), and the communication control part 107A will make connection with the terminal B (101B) via the communication line network 150 with it. The video information and speech information which are transmitted to the terminal B (101B) from TV camera 112A and the microphone 111A are made to input, and in an image and the voice input part 102A, the conversion process of the video information and speech information which were inputted is carried out to digital data, and it sends out to the transmission data compression control section 105A.

[0027]In the transmission data compression control section 105A, compression processing of the image and voice data which were inputted is carried out, It outputs to the communication control part 107A as compressed data (data on the compressed data line 119A), The compression parameters (for example, a quantization parameter, a sampling rate, the amount of picture data, color data *****, etc.) used at the time of data compression processing are outputted to the communication control part 107A as a control signal (signal on the controlling signal line 118A). In the communication control part 107A, it changes into the compressed video voice signal and the data format which suits the transmission system (for example, method doubled with circuits, such as ISDN) of the communication line network 150 which uses a compression parameter, and transmits to the terminal B (101B) via the communication line network 150. On the other hand in the terminal B (101B), the data sent from the terminal A (101A) in the line control part 107B Compressed data (signal on the signal wire 119A), It separates into a compression parameter, and compressed data (signal on the signal wire 119A) is inputted into the received-data decode part 106B, and a compression parameter is further inputted into it as a control signal (signal on the controlling signal line 117B).

[0028]By using the compression parameter according the received compressed data (signal on

the signal wire 119A) to the control signal on the controlling signal line 117B in the received-data decode part 106B, by the transmission data compression control section 105A of the terminal A (101A). With the decoding method which suits the method which carried out compression processing, elongation processing of the data is carried out and it sends out to an image and the phonological representation reproduction control part 103B. The data by which elongation processing was carried out is changed into a video signal and an audio signal, it sends out to the display monitor 110B and the loudspeaker 109B, respectively, and video information and speech information are made to output in an image and the phonological representation reproduction control part 103B.

[0029]The size of the display screen of the image displayed on the display monitor 110B, a luminosity, contrast, a color tone, vividness, etc., Or the control about a sound level, a frequency characteristic (tone control), etc. which are inputted into the loudspeaker 109B, What is necessary is to point via the control-input device 108B, and just to have composition performed with a control signal (signal on the controlling signal line 113B) by controlling an image and the phonological representation reproduction control part 103B.

[0030]At this time, an image and the phonological representation reproduction control part 103B, The displaying condition of the image of the image and the phonological representation reproduction control part 103B controlled by the control signal (signal on the controlling signal line 113B) by the connection destination terminal control signal generation part 104B, An audio reproduction state is outputted to the connection destination terminal control signal generation part 104B as a "status signal" (signal on the status signal line 115B).

[0031]In the connection destination terminal control signal generation part 104B, According to the state of a status signal (signal on the status signal line 115B), as a signal for controlling the transmission data compression control section 105A of the terminal A of a connection destination (101A), A control signal (signal on the controlling signal line 116B) is outputted, and this control signal is inputted into the transmission data compression control section 105A via the communication control part 107B, the communication line network 150, and the communication control part 107A.

[0032]Thereby, it becomes possible in the form corresponding to the display information on the display monitor 110B on the terminal B (101B), or the voice regenerating condition in the loudspeaker 109B to operate the compression parameter of the transmission data of the transmitting side of data, etc. by a receiver.

[0033]For example, although there is a demand of liking to enlarge the size of a frame rate (it is the number of screens per second) and the image screen displayed, resolution of the indicative data transmitted, etc. in a receiver, One of parameters will be sacrificed by receiving restriction of the maximum data transmission rate of the transmission line used, and trading off by it being impossible to fill all a demand of these. for example, although a display screen

(namely, -- making a frame rate small) is enlarged at the sacrifice of a frame rate and the case where resolution of data is also enlarged, and a display screen become small, Although the case where resolution of a frame rate and data is enlarged, and resolution of data are made small, the size of a frame rate and a display screen can consider performing various trade-offs of enlarging. The example of this control is explained with reference to drawing 4 and drawing 5.

[0034]Drawing 4 is a figure showing the user interface on the display monitor of this example. Drawing 5 is a figure showing the relation of the frame rate and resolution to the size of the display screen displayed on a display.

In drawing 4, the image sent to the display monitor 501 from the terminal of the other party is displayed on the display screen 502, and the size of 502 I. of a display screen can be changed by directing the size of the display screen 502 from the control-input device 108B. There are a frame rate for the frame rate 503A and the resolution 503B of the display screen 502 to be shown and the resolution display area 503 in the display monitor 501. As for "fps", frames per second and "Res" express resolution here.

[0035]In drawing 4, as a value of the frame rate 503A, although the value "256" is displayed on the resolution 503B, "20", If the value currently displayed becomes large, it means that a frame rate and resolution became large, respectively, and when a value is small, it means that a frame rate is small and resolution is low. Since picture image data is sent to the maximum of a transmission rate via the communication line network 150 which has restrictions, Since it becomes impossible for data to transmit normally when the compressed data (data on the compressed data line 119A) outputted from the transmission data compression part 105A of a transmitting side terminal surpasses this maximum transmission rate, Compressed data (data on the compressed data line 119A) needs to control the frame rate 503A and the resolution 503B not to surpass the maximum transmission rate.

[0036]In drawing 5, when the size of 502 I. (it illustrates to drawing 4) of a display screen is a value of 502I.2, the curve (502I.2 of curves) which shows the value which compressed data (data on the compressed data line 119A) can take is illustrated. The vertical axis of this figure is a frame rate.

Resolution is taken along the horizontal axis.

By the user interface of drawing 4, the frame rate 503A and the resolution 503B can take the value of the range surrounded at the point (point on the curve determined in 503A and 503B) on the curve shown in drawing 5, the point (503A) on a vertical axis, the point (503B) on a horizontal axis, and the starting point. The size of 502 I. of a display screen, and the frame rate 503A and the resolution 503B control an image and the phonological representation reproduction control part 103 by the connection destination terminal control signal generation part 104B via a status signal (point on the signal wire 115B) not to surpass this range.

[0037]Furthermore, at this time, the control signal (signal on the controlling signal line 116B) for controlling the transmission data compression part 105A of a connection destination terminal is generated, and the picture image data compressed at the terminal of the transmitting side is controlled by real time. Thus, the frame rate and resolution of an image which are sent from the transmitting side according to the size of a display screen at the terminal of a receiver are controllable within the limits of the maximum transmission rate of the communication line currently used. As mentioned above, although the case where an image was sent to the terminal 101B from the terminal 101A was explained, it is also the same as when sending to the terminal A (101A) from the terminal B (101B).

[0038]It is the same even if three or more terminals exist in being carried out. In drawing 5, although three are shown in 502I. of curvilinear 1 and 502I. of curves, the size of 502 I. of the display screen shows the case where 502I. 1 or 502I. a value three is taken, respectively, and, in now, this serves as 502I. $1 < 502I.$ a relation which becomes $2 < 502I.3$. As mentioned above, in this example, although taken and explained to the example of connection of the terminal of 1 to 1, two or more sets of terminals may be used, connecting simultaneously. In this case.

[whether as for the display screen 502 shown by drawing 4, only the number of the other party terminals connected exists, and two or more frame rates and resolution display area 503 exist similarly, and] Or it may have composition which displays only one piece and displays the screen to a desired connection destination terminal by operation, and may display. For example, the software built in electron devices, such as CPU, ROM, and RAM, and these devices realizes, and it deals in such a notation.

[0039]Of course, when two or more terminals are connected to the terminal B of drawing 1 (101B), the connection destination terminal control signal (signal on the controlling signal line 116B) outputted from the connection destination terminal control signal generation part 104B will control the transmission data compression control section of a connection destination terminal, respectively. Next, the 2nd example of this invention is described with reference to drawing 2. In drawing 2, the terminal 260 as a display monitor of the terminal shown by drawing 1, The display monitor of information processing terminals, such as a personal computer and a workstation, is used, It has composition which compounds the transmitted image to the display of a personal computer etc., and can display it on the display monitor of information terminal equipment, and further, communications control is also constituted so that the directions given via a keyboard, a mouse, etc. which are the input/output interfaces of an information processing terminal may perform.

[0040]Next, the composition of the terminal 260 is explained. An image and the voice input part 202 connect TV camera 212 and the microphone 211 outside, and the output signal of an image and the voice input part 202 is inputted into the transmission data compression control section 205. The transmission data compression control section 205 via the compressed data

line 219 to the communication control part 207, Compressed data is outputted, the control signal (signal on the controlling signal line 316) received from the connection destination terminal control signal generation part of the connection destination terminal connected to the communication control part 207 is inputted, and it is further connected with the controlling signal line 218. The compressed data (signal on the compressed data line 319) outputted from the communication control part 207 is inputted into the received-data decode part 206, and is further connected with the controlling signal line 217. The voice response of an image and the phonological representation regenerating section 203 is outputted to the external loudspeaker 209, and a video output is made to repeat mutually and is made to input the output of the received-data decode part 206 into an image and the sound reproduction control section 203, and to input into the control section 257. An image and the phonological representation reproduction control part 203, and the connection destination terminal control signal generation part 204, The control signal which is connected by the status signal line 215 and outputted via the controlling signal line 216 from the connection destination terminal control signal generation part 204 is inputted into the communication control part 207, and is inputted into the transmission data compression control section of the terminal connected via the communication line 150. The control signal (signal on the controlling signal line 213) from the control signal generating part 208 is inputted into an image and the phonological representation reproduction control part 203.

[0041]The control signal (signal on the controlling signal line 214) outputted from the control signal generating part 208 is inputted into the communication control part 207. The control signal generating part 208 is connected to the system bath 250. CPU252, the main memory 251, the secondary memory memory 253, the personal computer / WS (workstation) display control part 254, and the input interface 256 are connected to the system bath 250. The display output signal outputted from a personal computer / WS display control part 254 is made to pile up mutually, and is inputted into the control section 257, and the display output signal which makes pile each other up and is outputted from a control section is outputted to the display monitor 210. The keyboard 259 and mouse 258 grade are connected to the input interface 256. Next, the operation in this example is explained.

[0042]An image and the voice input part 202, an image and a phonological representation reproduction control part 203, the connection destination terminal control signal generation part 204, the received-data decode part 206, the transmission data compression control section 205, and the communication control part 207, The image and the voice input parts 102A and 102B, the image and the phonological representation reproduction control part 103A which were shown by drawing 1, It is the same composition as 103B, the connection destination terminal control signal generation parts 104A and 104B, the received-data decode parts 106A and 106B, the transmission data compression control sections 105A and 105B, and the

communication control parts 107A and 107B.

The same operation is performed.

In this example, instead of the control-input devices 108A and 108B shown by drawing 1, The control signal (signal on the controlling signal line 213) which forms the control signal generating part 208, is outputted from the control signal generating part 208, and is inputted into an image and the phonological representation reproduction control part 203, It is the same as that of the controlling signal line 113A of drawing 1, and the signal on 113B, and the control signal (signal on the controlling signal line 214) which is outputted from the control signal generating part 208, and is inputted into the communication control part 207 is the same as the controlling signal line 114A of drawing 1, and the signal on 114B. The display output signal outputted from a personal computer / WS display control part 254, and the video output signals outputted from an image and the phonological representation reproduction control part 203, You make it pile each other up, it piles up by the control section 257, control is performed, and the video output outputted from an image and the phonological representation reproduction control part 203 is changed into the scanning timing of the display monitors 210, such as a personal computer and a workstation, and it compounds with the display of a personal computer/WS, and displays.

[0043]Pile up here and control switches the display output signal and the video output signals from an image and the phonological representation reproduction control part 203 which are received from a personal computer / WS display control part 254, It is control for the moving image information which is made to output to the display monitor 210 and is outputted to the display screen 502 in drawing 6 from an image and the phonological representation reproduction control part 203 to display. This control is realized as follows, for example. First, with a certain specific color beforehand defined by the personal computer / WS display control part 254, smear away the portion equivalent to the viewing area of the display screen 502, and the superposition control section 257, What is necessary is just to perform control which switches so that this specific color may be detected, the display information from an image and the phonological representation reproduction control part 203 may be outputted at the time of a specific color and the display information on a personal computer / WS display control part 254 may be outputted at the times other than a specific color. What is necessary is to change the signal outputted from an image and the phonological representation reproduction control part 203 into the scanning timing which suits the display monitor 210, and just to control by the superposition control section 257 to take a synchronization. Thus, it becomes possible to display the moving image information sent out to the field of the display screen 502 from an image and the phonological representation reproduction control part 203 as shown in drawing 6 on the display monitor 210.

[0044]This superposition control section 257 is realizable with electron devices, such as CPU,

ROM, and RAM, for example. Now, the alter operation through the input means by the keyboard 259 and mouse 258 grade performs generation of the control signal by the control signal generating part 208 via the input interface 256. In order to control in relation to the display control by the personal computer / WS display control part 254 at this time, a display status signal (signal on the signal wire 255) is made the composition inputted from a personal computer / WS display control part 254. Control of a personal computer / WS display control part 254, control of the control signal generating part 208, etc. are realizable by composition which CPU252 performs in the auxiliary storage unit 253 and main memory 251 grade by the program which the account of ** feared beforehand. Next, the display example on the display monitor 210 is shown in drawing 6. On the display monitor 510, the display screen 502 based on the display information from an image and the phonological representation reproduction control part 203, the display output 506 from a personal computer / WS display control part 254, a frame rate and a resolution display, and the change area 504 are displayed on the same screen, respectively.

[0045]For example, use the mouse which is a locator and the mouse cursor 505 is moved, Can change the size of the display screen 502, and 502 I., and A frame rate resolution display, The button 504a (increase in the value of "fps") provided on the change area 504, The value of the frame rate 503A and the resolution 503B can be changed by moving a mouse cursor on 504b (increase in the value of "Res"), 504c (reduction of the value of "fps"), and 504d (reduction of the value of "Res"), and operating the button of a mouse. The range which can change a value is within the limits surrounded as mentioned above by the curve, and the vertical axis and horizontal axis which were shown by drawing 5. the mouse 258, the input interface 256 and the system bath 250 which show drawing 2 this change, for example, the personal computer / WS display control part 254, CPU252, and the superposition control section 257 -- and, It is realizable by the software for man-machine interface stored in the main memory 251. As for "fps", the frame number per second and "Res" mean resolution here. It is possible to make it operate simultaneously with other software which operates on an information processing terminal in addition to the image transmitted and displayed, to relate transmission of an image and other software and to also make it operate according to this example, since displaying is possible.

[0046]. For example, store in the database software which classifies the video data transmitted according to the contents, and operates on a personal computer/WS. A classification and accumulation of video information, and the animation transmitted further are made to stand it still, it is considered as a still picture, and this still picture is stuck on the sheet of desktop publishing (DTP software) which operates by a personal computer/WS, Corresponding to the item of the table of a spreadsheet, the moving image information beforehand accumulated in the magnetic disk of a personal computer/WS is searched and displayed, and application of

transmitting it can be considered. As mentioned above, in this example, when exchanging a video data between the applications which operate on a personal computer/WS, looking at animation display, it can use.

[0047]

[Effect of the Invention]According to this invention, the compressed data sent from a connection destination terminal is controlled by a connection destination terminal control signal generation part by a receiver, and resolution, a frame rate, etc. can be freely changed and set up by it within the limits of the maximum transmission rate of the transmission line to be used.

[0048]

[Translation done.]

* NOTICES *

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a figure showing the composition of the 1st example of this invention.

[Drawing 2] It is a figure showing the composition of the 2nd example of this invention.

[Drawing 3] It is a figure showing the composition of the conventional TV telephone.

[Drawing 4] It is a figure showing the display example on the display of the 1st example of this invention.

[Drawing 5] It is a figure showing the relation between the size of a display screen, and a frame rate and resolution.

[Drawing 6] It is a figure showing the display example on the display of the 2nd example of this invention.

[Description of Notations]

101A -- The terminal A, 101B -- The terminal B, 102A -- An image and a voice input part, 102B -- An image and a voice input part, 103A -- An image and a phonological representation reproduction control part, 103B -- An image and a phonological representation reproduction control part, 104A -- Connection destination terminal control signal generation part, 104B -- A connection destination terminal control signal generation part, 115A -- Status signal line, 115B -- A status signal line, 116A -- A controlling signal line, 116B -- Controlling signal line, 108A -- A control-input device, 108B -- A control-input device, 113A -- Controlling signal line, 113B -- A controlling signal line, 114A -- A controlling signal line, 114B -- Controlling signal line, 106A -- A received-data decode part, 106B -- Received-data decode part, 105A -- A transmission data compression control section, 105B -- Transmission data compression control section, 117A -- A controlling signal line, 117B -- A controlling signal line, 118A -- Controlling signal line, 118B -- A controlling signal line, 119A -- A compressed data line, 119B -- Compressed data line, 107A -- A communication control part, 107B -- A communication control part, 109A -- Loudspeaker, 110A [-- A loudspeaker, 110B / -- A display monitor, 111B / -- A microphone,

112B / -- A TV camera, 150 / -- A communication line network, 260 / -- Terminal,] -- A display monitor, 111A -- A microphone, 112A -- A TV camera, 109B 202 -- An image and a voice input part, 203 -- An image and a phonological representation reproduction control part, 204 -- Connection destination terminal control signal generation part, 215 -- A status signal, 216 -- A control signal, 205 -- Transmission data compression control section, 206 -- A received-data decode part, 208 -- A control signal generating part, 209 -- Loudspeaker, 210 -- A display monitor, 211 -- A microphone, 212 -- TV camera, 213 -- A controlling signal line, 214 -- A controlling signal line, 215 -- Status signal line, 216 [-- Compressed data line,] -- A controlling signal line, 217 -- A controlling signal line, 218 -- A controlling signal line, 219 219 [-- Main memory,] -- A signal wire, 207 -- A communication control part, 250 -- A system bath, 251 252 -- CPU, 253 -- An auxiliary storage unit, 254 -- A personal computer / WS display control part, 255 -- A signal wire, 256 -- An input interface, 257 -- Make it pile each other up and Control section, 258 [-- Signal wire,] -- A mouse, 259 -- A keyboard, 316 -- A controlling signal line, 319 401 [-- Decryption video signal line,] -- A camera, 402 -- A video signal line, 403 -- A video section, 404 405 [-- A communication line, 409 / -- A display, 410 / -- A receiver, 411 / -- Loudspeaker,] -- Image coding and a decoding section, 406 -- An encoded video signal line, 407 -- A communication line interface, 408 412 [-- Audio signal line,] -- A microphone, 413 -- An audio signal line, 414 -- An audio signal line, 415 416 -- A voice part, 417 -- A decoded speech signal wire, 418 -- Voice coding and a decoding section, 419 -- A coded voice signal line, 420 -- An operation key, 421 -- Key output signal line, 422 -- A control section, 423 -- A line control signal wire, 424 -- Voice control signal wire, 425 -- A video control signal line, 426 - - A status signal line, 501 -- Display monitor, 502 [-- Resolution, 504 / -- Change area, 504a / - - A button, 504b / -- A button, 504c / -- A button, 504d / -- A button, 505 / -- A mouse cursor, 506 / -- A display output, 510 / -- Display monitor] -- A display screen; 503 -- Resolution display area, 503A -- A frame rate, 503B

[Translation done.]

* NOTICES *

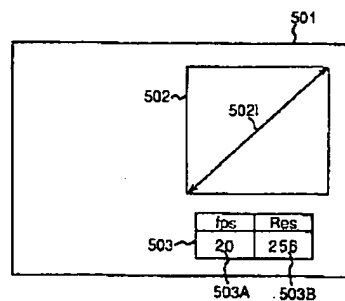
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DRAWINGS

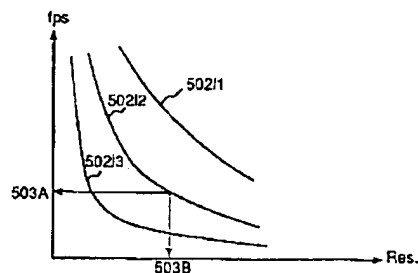
[Drawing 4]

ディスプレイ上のユーザインタフェース (図4)



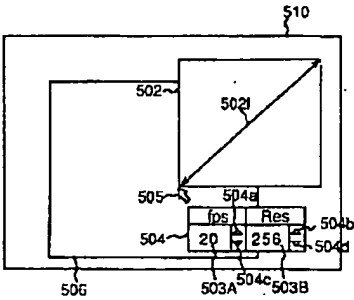
[Drawing 5]

表示画面の大きさとフレームレート、解像度との関係 (図5)



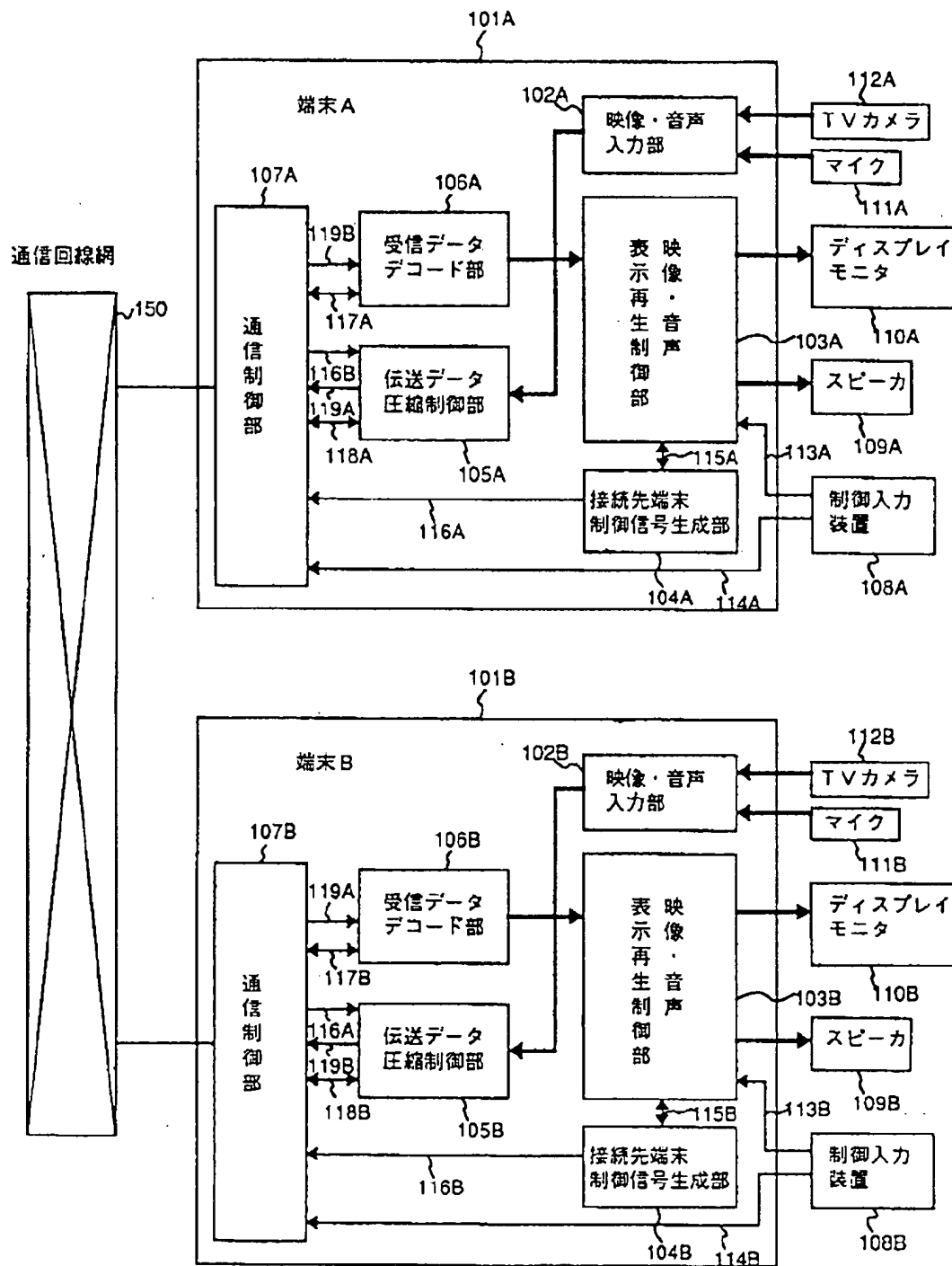
[Drawing 6]

表示及びユーザインタフェース（図6）



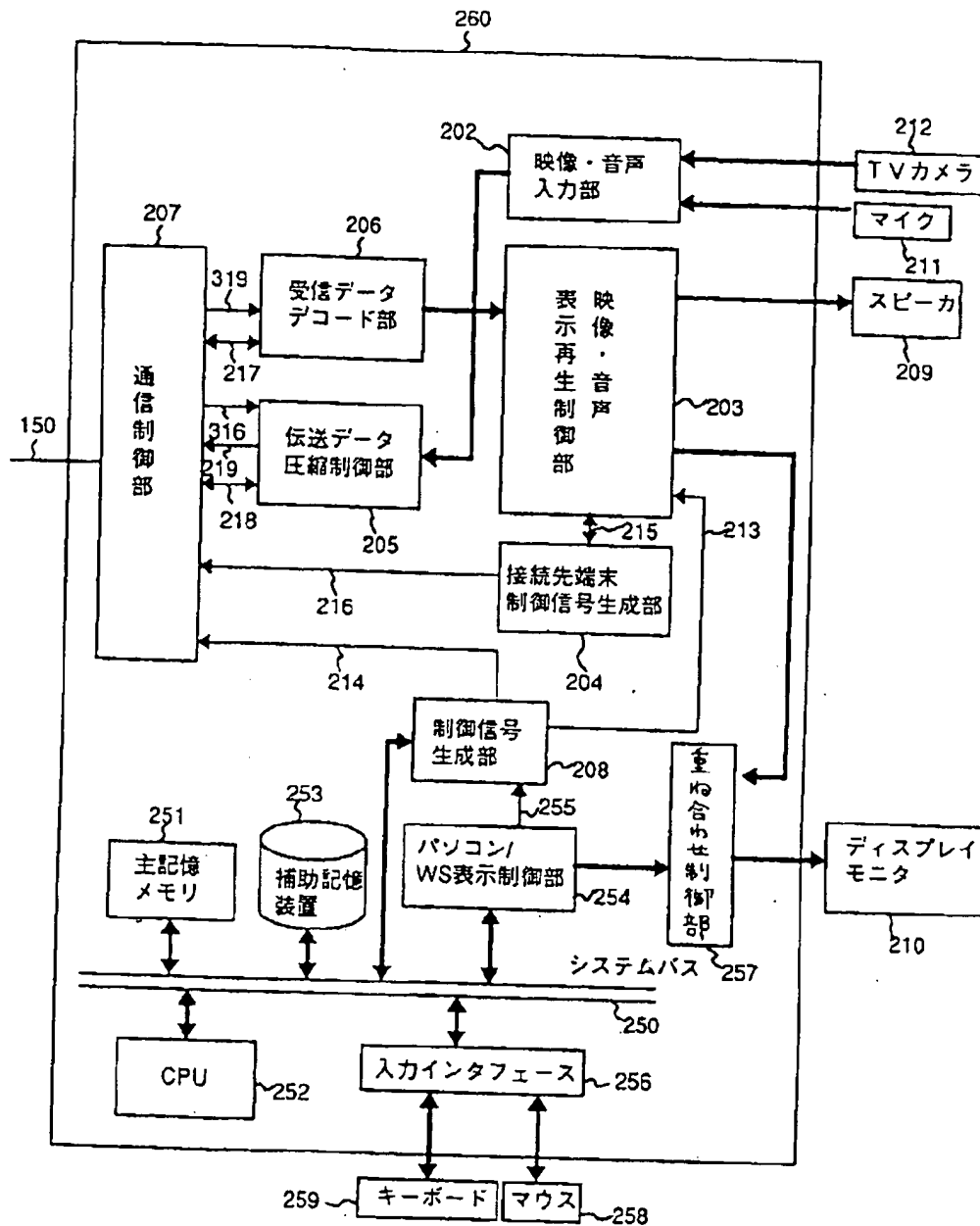
[Drawing 1]

映像伝送処理装置構成図 (図1)



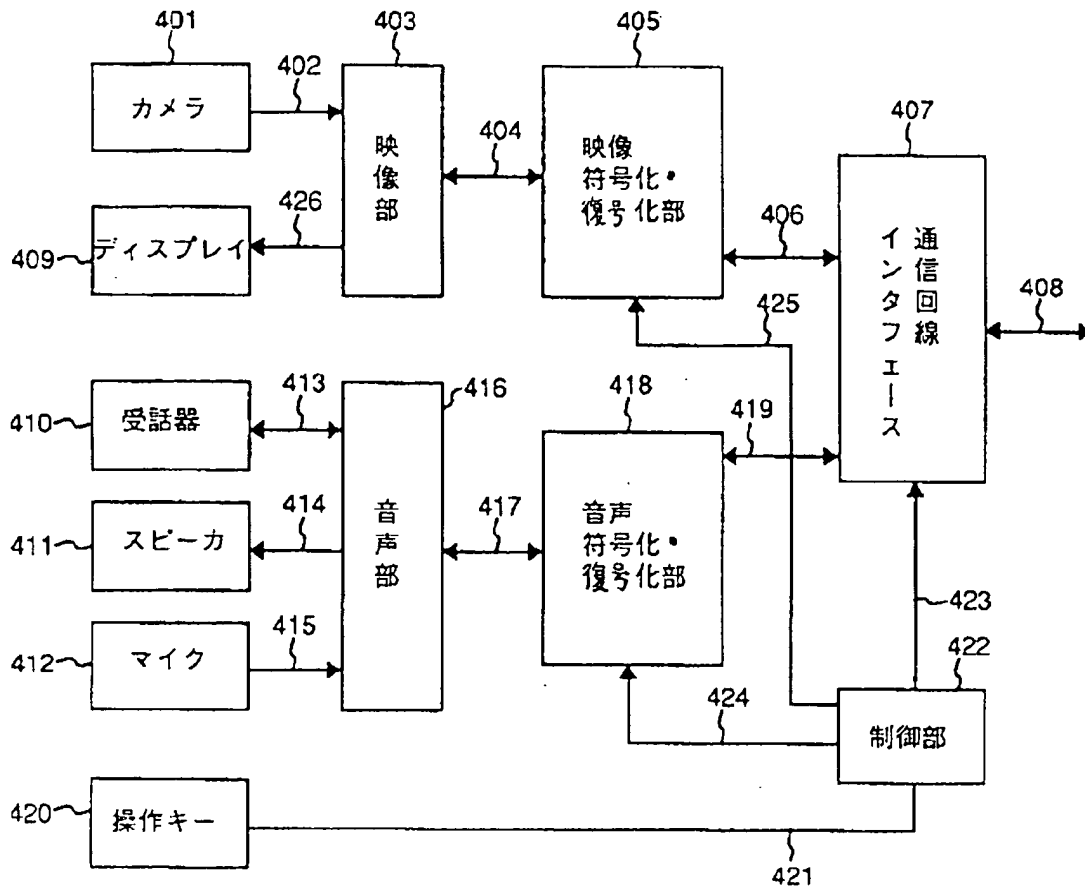
[Drawing 2]

映像伝送処理装置構成図 (図 2)



[Drawing 3]

従来のTV電話の構成例（図3）



[Translation done.]